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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/070,774	09/04/2002	Gavriel J Iddan	001/02614	9661
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WOLF, BLOCK, SCHORR & SOLIS-COHEN LLP 250 PARK AVENUE NEW YORK, NY 10177			SENF1, BEHROOZ M	
			ART UNIT	PAPER NUMBER
			2613	
DATE MAILED: 02/08/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/070,774	Applicant(s) IDDAN ET AL.	
	Examiner Behrooz Senfi	Art Unit 2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) 29-34 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 – 5, 7 – 9 and 27, are rejected under 35 U.S.C. 103(a) as being unpatentable over Stern et al (US 5,576,948) in view of Jasinski et al (US 6,504,569).

Regarding claim 1, Stern '948 teaches, a taking lens system that collects light from a scene being imaged with the optical imaging system (fig. 2, lens assembly 26, which collects light from the pane/scene P), and a 3-D camera comprising at least one photo-surface that receives light from the taking lens system simultaneously from all points in the scene (figs. 1 - 2, 3-D sensor receiver) and an imaging camera comprising at least one photo-surface that receives light from the taking lens system and provides a picture of the scene responsive to the light (figs. 1 - 2, 2-D sensor 21 and 25, which receives light from the lens assembly as shown in fig. 2, and camera is used for taking images), and a light control system that controls an amount of light from the taking lens that reaches at least one of the 3D camera and the imaging camera without affecting an amount of light that reaches the other of the camera, as can be seen in (fig. 4b, the computer controls beam deflector of the 3-D camera which has no effect on 2-D camera).

Stern teaches the use of 3-D camera/3-D sensor receiver to preview the scene with consideration of the Z height, which is actually the depth information of the scene provided by the 3-D camera (col. 1, lines 55 – 60, col. 2, lines 51 – 52).

Moreover, it is noted that Stern patent does not explicitly stated that the information collected from the 3-D camera, which includes the depth information is used for generating a depth map of the scene.

However, such features are well known and used in the prior art of the record as evidenced by Jasinschi (fig. 1, 3-D camera parameters 16, which includes depth map generator 30, col. 4, lines 20 – 21).

Therefore, it would have been obvious to one skilled in the art at the time of the invention was made to modify stern imaging system by using sub-modules, like depth map generator as taught by Jasinschi, which can use the information provided by the 3-D camera of stern to produce a depth map of the scene.

Regarding claim 2, combination of Stern and Jasinschi teaches, 3-D camera and imaging camera are bore-sighted with the taking lens system (fig. 2, of stern, shows the 2-D camera 25 and the 3-D sensor receiver which are bore-sighted with respect to the taking lens system 26).

Regarding claim 3, combination of Stern and Jasinschi teaches, one photo surface of the 3D camera and the at least one photo surface of the imaging camera are homologous, see (the photo-surface of the cameras as shown in fig. 2 of Stern are homologous).

Regarding claims 4, 5, and 7 – 8, it is noted that, combination of Stern and

Jasinski is silent in regards to, light controller adjustable to control "the amount of light collected by the taking lens system that reaches the imaging camera" without affecting the amount of light from the taking lens system that reaches the 3-D camera system (claims 4 and 7), and "iris" to control the exposure of the image (in claims 5 and 8).

Examiner takes Official Notice to note that, iris diaphragm is an inherent feature in the camera, which is used for controlling the diaphragm of that individual camera (which would not have any effect on the other camera) with respect to the amount of light that enters the imaging system of that individual camera in order to control the exposure of camera for taking images. Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention was made to implement such teachings as they are notoriously associated with the imaging device.

Regarding claim 9, combination of Stern and Jasinski teaches, light control system, comprises a light controller adjustable to control the amount of light from taking lens system that reaches the 3-D camera without affecting the amount of light from the taking lens system that reaches the imaging camera (fig. 4b, the computer controls beam deflector of the 3-D camera which has no effect on 2-D camera of Stern).

Regarding claim 27, it is noted that combination of Stern and Jasinski is silent in regards to camera comprises a color camera. Examiner takes Official Notice to note that, it is well known in the art to use a color camera in the imaging system to improve the quality of the image. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to implement such teaching as they are notoriously well known.

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3. Claim 6, are rejected under 35 U.S.C. 103(a) as being unpatentable over Stern et al (US 5,576,948) in view of Jasinschi et al (US 6,504,569) and further in view of Ulrich et al (US 6,603,103).

Regarding claim 6, combination of Stern and Jasinschi teaches, a taking lens System, that collects light from a scene being imaged with the optical imaging system and a light controller (fig. 2, lens assembly 26, which collects light from the scene P of Stern).

Combination of Stern and Jasinschi is silent in regards to light controller comprises "a neural density filter".

However such features are well known and used in the prior art of the record, as evidenced by Ulrich (col. 17, lines 7 – 8, and col. 18, lines 35 – 40 of Ulrich), where teaches the use of color filter to reduce unwanted reflections of light.

Taking the combined teaching of Stern, Jasinschi and Ulrich as a whole, it would have been obvious to one skilled in the art at the time of the invention was made to utilize the light controller of stern by using a color filter as suggested by Ulrich to reduce unwanted reflections of light (col. 17, lines 5 – 10 of Ulrich).

4. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stern et al (US 5,576,948) in view of Jasinschi et al (US 6,504,569) and further in view of Kondo et al (US 6,233,049).

Regarding claim 10, it is noted that combination of Stern and Jasinschi is silent in regards to "3-D camera comprises an iris for controlling the amount of light from the taking lens".

However as discussed earlier in the above action, iris diaphragm is an inherent features associated with the camera system, which actually controls the exposure of the image and amount of light that reaches the imaging system. Furthermore, In particular Kondo teaches (iris controller 59a in 3-D camera in figs. 1 and 3, col. 4, lines 55 – 65 and col. 8, lines 50 – 55).

Therefore, taking the combined teaching of Stern, Jasinski and Kondo as a whole, it would have been obvious to one skilled in the art at the time of the invention was made to modify the 3-d imaging system of Stern by using iris controller 59a as taught by Kondo to control the exposure of the image and adjust the amount of light that reaches the camera imaging system.

5. Claims 11 – 23 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stern et al (US 5,576,948) in view of Jasinski et al (US 6,504,569) and further in view of Nettleton et al (US 5,434,612).

Regarding claim 11, combination of Stern and Jasinski teaches, a taking lens system that collects light from a scene being imaged with the optical imaging system using 3-D and 2-D cameras, as discussed with respect to claim 1.

Combination of Stern and Jasinski is silent in regards to the, 3-D camera is “a gated 3D camera”.

However, such features are well known and used in the prior art of the record, as evidenced by Nettleton (i.e. fig. 6, shows a gated 3D camera).

Taking the combined teaching of Stern, Jasinski and Nettleton as a whole, it would have been obvious to one skilled in the art at the time of the invention was made

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to improve the imaging system of Stern by using a gated 3D camera, as taught by Nettleton, to substantially compensate for phenomenological issues as suggested by Nettleton (col. 2, lines 10 – 12).

Regarding claim 12, Combination of Stern and Jasinschi is silent in regards to, pulsed light source.

However, such features are well known and used in the prior art of the record, as evidenced by Nettleton (figs. 1 and 5, pulse generator, col. 4, lines 13 – 21).

Taking the combined teaching of Stern, Jasinschi and Nettleton as a whole, it would have been obvious to one skilled in the art at the time of the invention was made to improve the imaging system of Stern by incorporating a pulse generator module, as shown by Nettleton (col. 4, lines 13 – 21) for illumination purposes.

Regarding claims 13, combination of Stern, Jasinschi and Nettleton is silent in regards to IR light. Examiner takes Official Notice to note that the use of IR light for illumination purpose and tracking, as a non-visible and/or visible light source is notoriously well known in the prior art of the record. Therefore, it would have been obvious to one skilled in the art at the time of the invention was made to implement such teachings as they are so well known in the art.

Regarding claim 14, it is noted that combination of Stern and Jasinschi is silent in regards to 3-D camera comprises “at least 2 photo-surfaces”.

However, such features are well known in the prior art of the record, as evidenced by Nettleton (fig. 6, the 3-D gated 61 – 63, includes at least 2 photo-surfaces). Therefore, taking the combined teaching of Stern, Jasinschi and Nettleton, it

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would have been obvious to one skilled in the art at the time of the invention was made to improve the imaging system of Stern by using a gated 3D camera as taught by Nettleton, which clearly shows multiple photo-surfaces for receiving different pulses.

Regarding claim 15, it is noted that combination of Stern and Jasinschi is silent in regards to, light guide that receives light from the taking lens and directs portions of the light that it receives to each of the at least two photo-surfaces.

However, such features are well known in the prior art of the record, as evidenced by Nettleton (fig. 6, beam splitter 65 of Nettleton).

Therefore, taking the combined teaching of Stern, Jasinschi and Nettleton, it would have been obvious to one skilled in the art at the time of the invention was made to modify the 3-D imaging system of Stern by using a light guide to split the received light from the taking lens and direct it to different camera surfaces, as suggested in fig6, of Nettleton.

Regarding claim 16, it is noted that combination of Stern and Jasinschi is silent in regards to, a single shutter, which when gated open enables light from the taking lens system to reach the light guide.

However, such features are well known in the prior art of the record, as evidenced by Nettleton (col. 1, lines 23 – 25 of Nettleton).

Therefore, taking the combined teaching of Stern, Jasinschi and Nettleton, it would have been obvious to one skilled in the art at the time of the invention was made to modify the 3-D imaging system of Stern by using a shutter, to allow the receiver to let in the desired received pulse(s), as suggested by Nettleton (col. 1, lines 23 – 24).

Regarding claim 17, as discussed with respect to claim 16 above, Nettleton teaches shutter operation for allowing the desired pulses to enter to the imaging device, in other words the shutter must be controlled to allow the desired pulses to be entered to the imaging device, which would be done through opening and closing functionality of the shutter. Therefore, it would have been consider as an inherent features, which is necessitated by the camera operation system.

Regarding claim 18, it is noted that combination of Stern and Jasinschi is silent in regards to controller, controls each of the photo surfaces to be activated and deactivated.

However, such features are well known in the prior art of the record, as evidenced by Nettleton (fig. 6, controller 64, col. 4, lines 55 – 60) where teaches controller 64 is used for activating photo-surfaces 62 and 63.

Therefore, taking the combined teaching of Stern, Jasinschi and Nettleton as a whole, it would have been obvious to one skilled in the art at the time of the invention was made to modify the 3-D imaging system of Stern by using a controller as taught by Nettleton for activation and deactivation of the photo-surfaces, as suggested by Nettleton (col. 4, lines 58 – 60).

Regarding claim 19, the limitations, controller gates on the single shutter it activates one and only one of the at least two photo surfaces, as claimed; have been covered with respect to claims 16 and 18 above.

Regarding claim 20, combination of Stern, Jasinschi and Nettleton teaches at least two photo-surfaces comprises three photo-surfaces (fig. 6, 3-D gated camera of Nettleton).

Regarding claim 21, it is noted that combination of Stern and Jasinschi is silent in regards to controller, wherein following a time that at least one light pulse is radiated the controller gates on the single shutter for a first gate and turns on a first photo surface and wherein the first gate is timed so that light reflected from the at least one light pulse by a region in the scene is registered by the first photo-surface.

However, such features are well known in the prior art of the record, as evidenced by Nettleton (fig. 6, control electronic 64, col. 3, lines 28 – 29, and col. 4, lines 15 – 23 and lines 55 – 60) where controller, control the gates with respect to the light pulses.

Therefore, taking the combined teaching of Stern, Jasinschi and Nettleton as a whole, it would have been obvious to one skilled in the art at the time of the invention was made to modify the 3-D imaging system of Stern by using a controller as taught by Nettleton for activation and deactivation of the photo-surfaces with respect to the light pulse, as suggested by Nettleton (col. 4, lines 58 – 60).

Regarding claims 22 – 23, the limitations claimed are substantially similar to claim 21, except, controller gates on the second gate and activates a second one of the photo-surfaces (in claim 22) and controller gates on the third gate and activates a third one of the photo-surfaces and controls the gate width and timing of the third gate so that during the third gate substantially light from the at least one pulse that is reflected by the

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region, which is collected by the taking lens system is registered by the photo-surface (in claim 23), which reads on functionality of control electronics 64 for controlling the 3-D gated camera as shown (in fig. 6, controller 64, col. 1, lines 18 – 25, col. 4, lines 51 – col. 5, lines 5 of Nettleton).

Regarding claim 25, the limitations claimed, have been analyzed and rejected with respect to claim 15.

6. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stern et al (US 5,576,948) in view of Jasinski et al (US 6,504,569) and Nettleton et al (US 5,434,612) and further in view of Gharib et al (US 6,278,847).

Regarding claim 24, combination of Stern, Jasinski and Nettleton teaches, prism/beam splitter (fig. 6, prism 65 of Nettleton).

Combination of Stern, Jasinski and Nettleton does not explicitly mentions the use of, three-way prism, as claimed.

However, such features are notoriously well known in the prior art of the record, as evidenced by Gharib (fig. 3, element 310, which is a three way prism, col. 3, lines 24 - 25).

Therefore, taking the combined teaching of Stern, Jasinski, Nettleton and Gharib as a whole, it would have been obvious to one skilled in the art at the time of the invention was made to place a three way prism as taught by Gharib in the 3-D gated camera of Nettleton to separate the incoming light according to its colors, as suggested by Gharib (col. 3, lines 25 – 26).

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7. Claims 26 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stern et al (US 5,576,948) in view of Jasinski et al (US 6,504,569) further in view of Poole (US 4,166,280).

Regarding claim 26, it is noted that combination of Stern and Jasinski is silent in regards to, four-way prism.

However, such features are well known and used in the prior art of the record, as evidenced by Poole (i.e. col. 4, lines 28 – 30).

Taking the combined teaching of Stern, Jasinski and Poole as a whole, it would have been obvious to one skilled in the art at the time of the invention was made to improve the imaging system of Stern, by using a four-way prism splitter as taught by Poole, for reducing the intensity of light.

Regarding claim 28, it is noted that combination of Stern and Jasinski is silent in regards to, color camera and four-way prism.

However, such features are well known and used in the prior art of the record, as evidenced by Poole (i.e. col. 3, lines 15 – 16, col. 4, lines 28 – 30).

Taking the combined teaching of Stern, Jasinski and Poole as a whole, it would have been obvious to one skilled in the art at the time of the invention was made to use a color camera with four-way prism as taught by Poole in imaging system of Stern, to improve the quality of image, and have the advantage of capturing different colors and reducing the intensity of light and eliminate color fringing as suggested by Poole (col. 1, lines 22 – 23, col. 4, lines 30 – 32).

Contact

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Behrooz Senfi** whose telephone number is **(571) 272-7339**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Mehrdad Dastouri** can be reached on **(571) 272-7418**.

Hand-delivered responses should be brought to Randolph Building, 401 Dulany Street, Alexandria, Va. 22314.

Any inquiry of a general nature or relative to the status of the application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is **(571) 272-6000**,

Or faxed to:

(571) 273-8300

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B.M.S. 

MEHRDAD DASTOURI
SUPERVISORY PATENT EXAMINER

TC 2600

Mehrdad Dastouri